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(54) **MULTI-LAYER TUBING HAVING AT LEAST ONE INTERMEDIATE LAYER FORMED FROM A POLYAMIDE ALLOY**

(75) **Inventors:** Tao Nie, Macomb; Duane Pontbriand, Metamora; David Bensko, Oscoda, all of MI (US)

(73) **Assignee:** ITT Manufacturing Enterprises, Inc., Wilmington, DE (US)

(*) **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(58) **Field of Search** 138/137, 141, 138/146, 126, DIG. 7

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Primary Examiner—James Hook

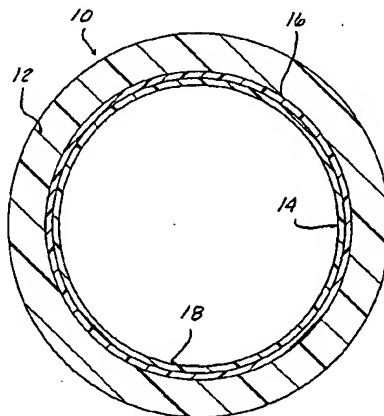
(74) *Attorney, Agent, or Firm*—Robert P. Seitter

(57)

ABSTRACT

A multi-layer tube for use in a motor vehicle system to transport fluids containing hydrocarbons such as would be found in a fuel line, a vapor return line or a vapor recovery tube having a first layer radially disposed innermost made up of an extrudable melt-processible thermoplastic material capable of withstanding prolonged exposure to automotive fuel and various fuel additives, and second layer made up of an extrudable, melt-processible non-polyester, non-alcoholic thermoplastic material capable of sufficiently permanent laminar connection with the first layer so as to prevent delamination between the first and second layers during a desired lifetime of the tube. The thermoplastic material of the second layer is made up of at least one constituent which is chemically dissimilar from the thermoplastic material employed in the first layer such as a melt-processible compound having at least two isocyanate groups in combination with a compound which is chemically similar to the thermoplastic material of the first layer such as a thermoplastic elastomer, or a polyamide. The tubing of the present invention may, optionally, include additional layers interposed between the respective layers or may include additional layers which overlie the exterior surface of the second layer.

44 Claims, 2 Drawing Sheets



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